In 1911, he was made a member of the Canadian Government's Commission to determine landslide hazards from mining operations, an investigation inspired by the Turtle Mountain rock slide. A year later he organized the first international conference of mine-safety research investigators, which met in Pittsburgh. He was a pioneer in the introduction in the United States of permissible mine explosives, mine rescue apparatus, and the use of rock-dust in coal mines to prevent coal-dust explosions.

During World War I, Dr. Rice suggested that the Bureau of Mines' engineers and chemists, experienced in dealing with explosives and poisonous gases in mines, would be of great assistance in developing masks to protect our troops against war gases. The project was instituted by the bureau and later transferred to the War Department. During the Armistice, he reported on war damage to French and Belgian mining and metallurgical plants.

From 1919 to 1922, when the Holland Vehicular Tunnel between New York and New Jersey was being constructed, he participated in ventilation tests and studies.

He visited Europe in 1923 as a representative to the International Mining Congress in London and, while abroad, studied progress in the use of rock-dust to prevent coal-dust explosions, methods of mining oil shale in Scotland and oil sands in France and Germany, potash mining in France and Germany, and hydraulic stowing to prevent or minimize surface subsidence.

Dr. Rice arranged for cooperation in mine-safety research between the bureau and the British Mines Department, serving as liaison officer until his retirement. During 1928 he investigated disastrous outbursts of gas in certain coal mines in Belgium, southern France, and lower Silesia. In 1935 he was the United States representative to the Seventh International Congress on Mining and Applied Geology in Paris.

He received international recognition for his outstanding services. In 1923, the British Institution of Mining Engineers, of which he was made an honorary member, awarded him a medal for "eminence in all matters relating to the safe working of coal mines— with special reference to the practical application of scientific knowledge." In 1931 he was awarded a medal by his alma mater, Columbia University. In 1936 he was awarded a degree of Doctor of Science by Lafayette College. In 1937 he was made an honorary member of the Canadian Mining and Metallurgical Institute. He was also an honorary member of La Societe de l'Industrie Minerale, France. In 1946 he was awarded a medal by the Joseph A. Holmes Safety Association.

Among the other organizations with which Dr. Rice was affiliated were the Geological Society of Washington (since 1923), the American Institute of Mining and Metallurgical Engineers, the Dust Explosion Hazard and Mine Correlating Committees of the American Standards Association, the Mining Society of America, the American Association for the Advancement of Science, the Coal Mining Institute of America, the Washington Society of Engineers, the Washington Academy of Sciences, and the Cosmos Club.

At various times he assisted in the revision of mine-safety regulations in various states, and he nitiated a conference of representatives from public-land states for the purpose of drafting regulations to apply to mining operations on public lands under lease from the Government.

His passing is deeply regretted by his former associates and friends and by those who knew him through his publications. His work and publications are of enduring value to the mining industry. Surviving are his widow, Mrs. Sara Marie Rice; a daughter, Mrs. Katherine Mollison, of Wellesley Hills, Mass.; a son, J. Brewster Rice, of Short Hills, N. J.; and a brother and four grandchildren.

H. I. SMITH.*

CLARENCE ARTHUR REED, a member of the Washington Academy of Sciences, passed away on January 14, 1950—a few days before his 70th birthday—in a Lakeland, Fla., hospital after a brief illness. He had suffered from a heart condition for several years.

Mr. Reed was born on January 23, 1880, in Howell, the county seat of Livingston County, Mich. He graduated from Michigan State College in 1905 with the degree of B.S. and received the degree of master of horticulture from the same institution in 1913. He married Miss Katherine McNaughton in 1910, who, with a daughter, Mrs. Harris Richardson, of Washington, survives him. His first employment was with a Chicago landscaping firm. In 1906 and 1907 he was assistant horticulturist

* Communicated to the Geological Society of Washington at its meeting held on March 8, 1950.